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EXAMINER	
DANIELS, MATTHEW J	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Response to Arguments

1. Applicant's arguments filed 18 August 2008 have been fully considered but they are not persuasive. The arguments appear to be on the following grounds:

a) None of the cited references teach casting a ceramic slurry of about 70-90% particles having sizes of about 0.1 to 50 microns.

b) Applicants admit that Klug mentions a particle size range that partially overlaps with the claimed particle size range, but assert that these particles are too big to replicate the feature passages of cross-sectional areas of 0.0001 to 0.0006 square inches.

c) Klug teaches a ceramic slurry containing 51% liquid. The present invention calls for 70-90% particles.

d) The other cited references do not teach the particle size loading or size range specified in the current invention.

e) Particles of 300 mesh (50 microns) to 900 mesh (18 microns) do not fall in the range disclosed by the specification. Claim 1 requires that 70-90% of the slurry particles are in the range of 0.1 to 50 microns.

2. These arguments are not persuasive for the following reasons:

a,c) Applicants' arguments do not address the teaching in Krug that the slurries may have 30% by volume of water and other additives. See Klug, [0028]. It should be noted that all of the ceramic materials disclosed by Klug have densities significantly greater than that of water (alumina: 3.7-3.9 g/cm^3; silica: 2.2-2.6 g/cm^3; water: 1.0 g/cm^3), thus when making the conversion from volume percent to weight percent, it is submitted that the claimed range of 70%-

90% particles would have been obvious since the ceramic materials would result in a large weight fraction particles compared to the amount of water. Even using the example urged by Applicants (Example 1, column 7), where 49% by volume alumina is used with the remainder being mostly water (col. 7, line 38), since the density of alumina is roughly four times the density of water, a rough calculation shows that this material would contain about 80% ceramic particles.

Additionally, Klug appears to suggest that the process may use a slurry *or a paste*. See Klug, [0021]. The difference would appear to be that a paste contains a smaller amount of liquid than found in the slurries. Additionally still, the particular quantity of liquid contained in the slurry would be a result effective variable which changes the freeze-drying time depending upon the concentration and type of volatile components in the article. See Klug, [0018]. In selecting the appropriate mixture through routine experimentation, one would have obviously selected the appropriate water/solvent amount in an effort to reduce freeze-drying time.

b,e) Applicants admit that Klug mentions a particle size range that partially overlaps with the claimed particle size range. It is unclear why the particles disclosed by Krug would be too large to replicate the feature passages of 0.0001 to 0.0006 square inches, and it is unclear that this argument is commensurate with the scope of the claim. However, even assuming that the stated passage size is critical to the invention, *arguendo*, it is submitted that the Klug materials would be capable of fabricating these passage sizes. A passage size of 0.0006 square inches, if assumed to be round, would result in a diameter of 0.0138 inches. This would be equivalent to 351 microns, larger than the particle sizes disclosed by Krug.

Applicants' argument that particles of 18 microns to 75 microns do not fall in the range disclosed by the specification is noted, but the basis for the assertion is unclear. Page 8,

paragraph [0048] of the specification discloses that particles sizes of less than 100 microns will work in the ceramic slurries, with 0.1 to 50 microns preferred. Thus, no different or unexpected result is asserted for any particles under 100 microns.

What is clear is that Krug teaches small particle sizes that substantially overlap with the claimed range, and there is no evidence that the claimed particle size would produce an unexpected result. Krug provides non-limiting disclosure of particle sizes of about 17 microns (900 mesh) to 125 microns (120 mesh) ([0033]), and one would have obviously selected the appropriate size and distribution within this broad range.

d) The other applied references are believed to be valid for the teachings relied upon in the previous rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW J. DANIELS whose telephone number is (571)272-2450. The examiner can normally be reached on Monday - Friday, 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Matthew J. Daniels/
Primary Examiner, Art Unit 1791
11/26/08